Obviously numerous modifications may be made to this invention without departing from its scope as defined in the appended claims.

I claim:

1. A fire extinguishing apparatus comprising;

a turret mounted in a preselected area;

sensor means for detecting a fire;

nozzle means mounted on said turret, said nozzle means being arranged and constructed to eject a fire extinguishing agent; and

aiming means coupled to said sensor for aiming said nozzle means toward said fire when said fire is detected by said sensor means;

wherein said sensor means includes a first set of sensors having optical axes disposed at a first angle with respect to a vertical line and a second set of axis disposed at a second angle with respect to said vertical line.

2. The extinguisher of claim 1 wherein said turret is rotatable.

3. The apparatus of claim 2 wherein said aiming means includes means for rotating said turret about a vertical axis.

4. The apparatus of claim 3 wherein said nozzle means is rotatable with respect to a horizontal axis.

5. The apparatus of claim 1 wherein said first set of sensors alternate with respect to said second said of sensors.

6. The apparatus of claim 1 wherein said sensor means is mounted on said turret for concurrent movement with said nozzle means.

7. A fire extinguishing apparatus comprising;

a housing rotatable about a first axis;

a nozzle supported by said housing;

sensor means for sensing a fire;

aiming means for aiming said nozzle toward said fire; and

water supply means coupled to said sensor means for supplying water to said nozzle when said fire is sensed;

wherein said sensor means comprises a plurality of sensors arranged in an array around said nozzle.

8. The apparatus of claim 7 wherein said nozzle is rotatable about a second axis normal to said first axis.

9. The apparatus of claim 7 wherein said sensor means is mounted on said housing and is coupled to said nozzle for concurrent movement therewith.

10. The apparatus of claim 7 wherein said nozzle is constructed and arranged to occult said fire from some of said sensors when said nozzle is not aimed toward said fire.

11. The apparatus of claim 7 wherein each of said sensors comprises an electrical element, and a field of vision, said electrical element generating an electrical signal when said fire is in the field of vision of the corresponding sensor.

12. The apparatus of claim 11 further comprising filtering means for filtering a frequency of said electrical signals to differentiate said fire from other heat sources.

13. A fire extinguishing apparatus comprising:

a housing disposed in a preselected area;

nozzle means for selectively directing water at a fire;

a plurality of sensor means mounted on the nozzle means, each said sensor monitoring a portion of said area to generate a sensor signal when a fire is detected; and

aiming means coupled to each said sensor means for aiming said nozzle toward said fire.

14. The apparatus of claim 13 wherein said housing is rotatable about a vertical axis and said nozzle is mounted on said housing.

15. The apparatus of claim 14 wherein said nozzle means is rotatable about a horizontal axis.

16. The apparatus of claim 15 wherein said nozzle means and said sensors are mounted on an arm.

17. The apparatus of claim 16 wherein said aiming means includes a pan motor for panning said housing about said vertical axis in response to signals from said sensors.

18. The apparatus of claim 17 further comprising a tilting motor for tilting said nozzle means with respect to said horizontal axis in response to signals from said sensors.

* * * * *

Add Cx

Add Cx

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

IN THE CLAIMS:

19. (Previously Amended) A method for detecting a location of a fire within a predetermined area, said method comprising the acts of:

(a) monitoring infrared energy within the predetermined area;

(b) filtering out the infrared energy not within a predetermined frequency range to produce filtered energy signals;

(c) determining existence of a fire within the predetermined area based on the filtered energy signals;

(d) determining a location of the fire within the predetermined area when said determining (c) determines the existence of the fire; and

E2 (e) directing a nozzle of a fire extinguishing apparatus to the location of the fire, wherein the location of the fire is an x-y location, and

wherein said directing (e) directs the nozzle of the fire extinguishing apparatus to the x-y location of the fire by moving the fire extinguishing apparatus in both an x-direction and a y-direction.

20. (Previously Added) A method as recited in claim 19, wherein said determining (d) of the location of the fire is performed using the filtered energy signals.

21. (Previously Amended) A method as recited in claim 19, wherein said method further comprises:

(f) supplying fire extinguishing agent through said nozzle when the fire is sensed; and

(g) ceasing the supply of the fire extinguishing agent through said nozzle when the fire is no longer sensed by said sensors,

wherein following said ceasing (g), said method is again ready to locate another fire by repeating said acts (a) through (g).

22. (Previously Amended) A method as recited in claim 21, wherein said determining (d) of the location of the fire and said directing (e) of the nozzle to the location of the fire are performed simultaneously.

23. (Currently Amended) A method as recited in claim 19, wherein said determining (d) of the location of the fire and said directing (e) of the nozzle to the location of the fire are performed simultaneously.

24. (Previously Added) A method as recited in claim 22, wherein the fire extinguishing apparatus includes a plurality of sensors positioned around the nozzle, and the sensors detect the infrared energy.

25. (Previously Added) A method as recited in claim 24, wherein said determining (d) of the location of the fire finds the location of the fire by balancing the infrared energy received from the sensors.

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26. (Previously Added) A method as recited in claim 22, wherein said method further comprises:

(f) supplying fire extinguishing agent through said nozzle when said fire is sensed; and

(g) ceasing the supply of the fire extinguishing agent through said nozzle when said fire is no longer sensed by said sensors.

27. (Previously Added) A method as recited in claim 26, wherein following said ceasing (g), said method is again ready to locate another fire by repeating said acts (a) through (g).

28. (Currently Amended) A method for detecting a fire within a predetermined area, comprising:

(a) sensing infrared energy within the predetermined area;

(b) converting the infrared energy into electrical signals;

(c) filtering the electrical signals to produce filtered electrical signals which correspond to a fire;

(d) detecting the presence of a fire within the predetermined area based on the filtered electrical signals; and

(e) moving a fire extinguishing nozzle so as to point to the fire detected in said detecting (d),

wherein said detecting (d) detects a location of the fire, and

wherein the location of the fire is an x-y location, and wherein said moving (e) moves the fire extinguishing nozzle to the x-y location of the fire by moving the fire extinguishing apparatus in both an x-direction and a y-direction.

29. (Previously Added) A method as recited in claim 28, wherein said sensing (a) senses infrared energy in a predetermined area, and wherein said filtering (c) filters signals in the frequency range of 5-30 Hz.

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30. (Currently Amended) A method of claim 28, wherein said detecting (d) comprises comparing the filtered electrical signals with a predetermined threshold level.

31. (Previously Amended) A method of claim 28, wherein said sensing (a) monitors a plurality of infrared sensors, and wherein said detecting (d) comprises determining location of a fire based on the filtered signals from the plurality of the infrared sensors.

32. (Previously Amended) A method as recited in claim 28, wherein said method further comprises (f) releasing a fire extinguishing agent towards the fire via the fire extinguishing nozzle.

33. (Previously Amended) A method of claim 28, wherein said method further comprises:

(f) supplying fire extinguishing agent through the nozzle when the fire is sensed; and

(g) ceasing the supply of the fire extinguishing agent through the nozzle when the fire is no longer sensed by said sensors.

34. (Previously Amended) A method as recited in claim 33, wherein following said ceasing (g), said method is again ready to locate another fire by repeating said acts (a) through (g).

35. (Previously Amended) A method as recited in claim 28, wherein said detecting (d) of the location of the fire and said moving (e) of the nozzle to the location of the fire are performed simultaneously.

36. (Previously Amended) A method as recited in claim 35, wherein a plurality of sensors are positioned around the nozzle, and the sensors detect the infrared energy.

37. (Previously Added) A method as recited in claim 36, wherein said detecting (d) of the location of the fire finds the location of the fire by balancing the infrared energy received from the sensors.

38. (Previously Added) A method as recited in claim 36, wherein said method further comprises:

(f) supplying fire extinguishing agent through the nozzle when the fire is sensed; and

(g) ceasing the supply of the fire extinguishing agent through the nozzle when the fire is no longer sensed by said sensors.

39. (Previously Added) A method as recited in claim 38, wherein following said ceasing (g), said method is again ready to locate another fire by repeating said acts (a) through (g).

40. (Previously Added) A method as recited in claim 38, wherein said sensing (a) senses infrared energy in a predetermined area, and wherein said filtering (c) filters signals in the frequency range of 5-30 Hz.

41. (Previously Added) A method of claim 38, wherein said detecting (d) comprises comparing the filtered electrical signals with a predetermined threshold level.

42. (Previously Added) A method as recited in claim 34, wherein said sensing (a) senses infrared energy in a predetermined area, and wherein said filtering (c) filters signals in the frequency range of 5-30 Hz.

43. (Previously Added) A method of claim 34, wherein said detecting (d) comprises comparing the filtered electrical signals with a predetermined threshold level.

44. (Previously Added) A method as recited in claim 28, wherein the predetermined area is an area of a structure.

45. (Previously Added) A method as recited in claim 44, wherein the area is a room and the structure is a building.

46. (Previously Added) A system, comprising:

a fire detector that detects a location of a fire within a predetermined area, said fire detector monitors infrared energy within the predetermined area, filters out the infrared energy not within a predetermined frequency range to produce filtered energy signals, determines existence of a fire within the predetermined area based on the filtered energy signals, and determines a location of the fire within the predetermined area when the existence of the fire has been determined; and

a fire extinguishing agent that supplies fire extinguishing agent toward the location of the fire when the existence of the fire has been determined and ceases supply of the fire extinguishing agent toward the location of the fire when the existence of the fire is no longer detected.